

SPECIAL SPECIFICATION

SECTION 15850S

AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Roof, wall, and floor diffusers, registers and grilles, louvers, louver penthouses and roof hoods.

1.02 RELATED SECTIONS

- A. Section 09900S - Painting
- B. Section 15891S - Ductwork
- C. Section 15950S - Testing, Adjusting and Balancing.

1.03 REFERENCES

- A. ADC 1062 - Certification, Rating and Test Manual.
- B. AMCA 500 - Test Method for Louvers, Dampers and Shutters.
- C. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
- D. ARI 650 - Air Outlets and Inlets.
- E. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.
- F. SMACNA 1035 - HVAC Duct Construction Standards - Metal and Flexible.

1.04 SUBMITTALS

- A. Include product data for outlets and inlets indicating type, size, location, application, and noise level.
- B. Review requirements of outlets and inlets as to size, finish, and type of mounting prior to submitting product data and schedules of outlets and inlets.

Air Outlets and Inlets

- C. Include manufacturer's installation instructions.

1.05 QUALITY ASSURANCE

- A. Test and rate performance of air outlets and inlets in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
- B. Test and rate performance of louvers in accordance with AMCA 500.
- C. Conform to NFPA 90A.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. As scheduled on the drawings as well as:
 - 1. Ceiling Diffusers:
 - a. Anemostat.
 - b. Krueger Manufacturing Company.
 - c. Titus Products.
 - 2. Louvers:
 - a. Airolite.
 - b. Ruskin.
 - 3. Roof Hoods:
 - a. ACME.
 - b. Cook.

2.02 ROUND CEILING DIFFUSERS

- A. Round, adjustable pattern, stamped or spun, multicore type diffuser to discharge air in 360-degree pattern, with sectorizing baffles where indicated.
- B. Project diffuser collar not more than 1 inch above ceiling face and connect to duct with duct ring. In plaster ceilings, provide plaster ring and ceiling plaque.

- C. Fabricate of steel with baked enamel off-white finish.
- D. Provide radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.03 RECTANGULAR CEILING DIFFUSERS

- A. Rectangular, adjustable pattern, stamped, multicore type diffuser to discharge air in 360-degree pattern with sectorizing baffles where indicated.
- B. Provide surface mount type frame. In plaster ceilings, provide plaster frame and ceiling frame.
- C. Fabricate of steel with baked enamel off-white finish.
- D. Provide radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.04 PERFORATED FACE CEILING DIFFUSERS

- A. Perforated face with fully adjustable pattern and removable face.
- B. Provide surface mount type frame. In plaster ceilings, provide plaster frame and ceiling frame.
- C. Fabricate of steel with steel or aluminum frame and baked enamel off-white finish.
- D. Provide radial opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.05 MODIFIED LIGHT TROFFER DIFFUSERS

- A. Single plenum type constructed independent of light troffers with volume and pattern controllers with oval top or side air inlet as scheduled.
- B. Match diffusers to light troffers and connect in airtight connection without tools.
- C. Fabricate of galvanized steel with welded or soldered joints and finish matte black inside.

2.06 CEILING SUPPLY REGISTERS/GRILLES

- A. Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection.

- B. Fabricate 1-inch margin frame with concealed mounting and gasket.
- C. Fabricate of aluminum extrusions with factory finish as specified by A/E.
- D. Provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.07 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

- A. Streamlined blades, depth of which exceeds 3/4-inch spacing, with spring or other device to set blades, vertical face.
- B. Fabricate 1-inch margin frame with concealed mounting.
- C. Fabricate of steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory baked enamel finish.
- D. Where not individually connected to exhaust fans, provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.08 CEILING GRID CORE EXHAUST AND RETURN REGISTERS/GRILLES

- A. Fixed grilles of 1/2-inch by 1/2-inch by 1/2-inch louvers.
- B. Fabricate 1 inch margin frame with countersunk screw mounting for gypsum board ceiling or lay-in frame for suspended grid ceilings.
- C. Fabricate of aluminum with factory baked enamel finish.
- D. Where not individually connected to exhaust fans, provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.09 CEILING LINEAR EXHAUST AND RETURN GRILLES

- A. Streamlined blades with 90-degree one-way deflection, 1/8-inch by 3/4-inch on 1/4-inch centers.
- B. Fabricate 1-inch margin frame with countersunk screw mounting.

- C. Fabricate of steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory baked enamel finish.
- D. Where not individually connected to exhaust fans, provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.10 CEILING SLOT DIFFUSERS

- A. Continuous 1/2-inch wide slot, two slots wide, with adjustable vanes for left, right, or vertical discharge.
- B. Fabricate of aluminum extrusions with factory clear lacquer finish.
- C. Fabricate 1-inch margin frame with concealed support clips for suspension system or support clips for T bar mounting and gasket. Provide mitered end border.

2.11 WALL SUPPLY REGISTERS/GRILLES

- A. Streamlined and individually adjustable blades, depth of which exceeds 3/4-inch maximum spacing with spring or other device to set blades, vertical face, double deflection.
- B. Fabricate 1-inch margin frame with countersunk screw mounting and gasket.
- C. Fabricate of steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory baked enamel finish.
- D. Provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.12 WALL SUPPLY REGISTERS/GRILLES

- A. Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection.
- B. Fabricate 1-inch margin frame with countersunk screw mounting and gasket.
- C. Fabricate of aluminum extrusions with factory clear lacquer finish.
- D. Provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.13 WALL EXHAUST AND RETURN REGISTERS/GRILLES

- A. Streamlined blades, depth of which exceeds 3/4-inch spacing, with spring or other device to set blades, vertical face.
- B. Fabricate 1-inch margin frame with countersunk screw mounting.
- C. Fabricate of steel with 20 gage minimum frames and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory baked enamel finish.
- D. Where not individually connected to exhaust fans, provide integral, gang-operated opposed blade dampers with removable key operator, operable from face.

2.14 LINEAR WALL REGISTERS/GRILLES

- A. Streamlined blades with 15-degree deflection, 1/8-inch by 3/4-inch on 1/4-inch centers.
- B. Fabricate of aluminum extrusions, with factory clear lacquer finish.
- C. Fabricate 1-inch margin frame with countersunk screw mounting and gasket.
- D. Provide integral gang-operated opposed blade damper with removable key operator, operable from face.

2.15 LINEAR FLOOR SUPPLY REGISTERS/GRILLES

- A. Streamlined blades with 15-degree deflection, 1/8-inch by 3/4-inch on 1/4-inch centers.
- B. Fabricate of aluminum extrusions with factory clear lacquer finish.
- C. Fabricate 1-inch margin heavy margin frame with countersunk screw mounting.
- D. Provide integral gang-operated opposed blade damper with removable key operator, operable from face.

2.16 DOOR GRILLES

- A. V-shaped louvers of 20 gage steel, 1 inch deep on 1/2-inch centers.
- B. Provide 20 gage steel frame with auxiliary frame to give finished appearance on both sides of door, with factory prime coat finish.

2.17 LOUVERS

- A. Provide 6-inch deep louvers with blades on 45-degree slope with center baffle and return bend, heavy channel frame, birdscreen on interior side with 1/2-inch square mesh for exhaust and 3/4-inch for intake.
- B. Fabricate of 12 gage extruded aluminum, welded assembly, with factory prime coat finish.
- C. Furnish with exterior angle flange for installation.
- D. Fabricate louver penthouses with mitered corners and reinforce with structural angles.
- E. Pass 750 feet per minute free velocity with less than 0.10 inches of water pressure drop, based in accordance with AMCA 500. Water penetration less than 0.025 ounce of water per foot of free area at 900 feet per minute. Provide a minimum of 45 percent free area.

2.18 ROOF HOODS

- A. Fabricate air inlet or exhaust hoods in accordance with SMACNA 1035, Class 1 inch, Duct Construction Standards.
- B. Fabricate of galvanized steel, minimum 16 gage base and 20 gage hood, or aluminum, minimum 16 gage base and 18 gage hood; suitably reinforced; with removable hood; birdscreen with 1/2-inch square mesh for exhaust and 3/4-inch for intake, and factory prime coat finish.
- C. Mount unit on minimum 12-inch high curb base with insulation between duct and curb.
- D. Make hood outlet area minimum of twice throat area.

2.19 GOOSENECKS

- A. Fabricate in accordance with SMACNA 1035, Class 1 inch, of minimum 18 gage galvanized steel.
- B. Mount on minimum 12-inch high curb base where size exceeds 9-inch by 9-inch.

2.20 CORROSION PROTECTION

- A. Coat all inlets and outlets in corrosive areas with two coats air dried Heresite.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install items in accordance with manufacturers' instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
- C. Install diffusers to ductwork with air tight connection.
- D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, regardless of whether dampers are specified as part of the diffuser, or grille and register assembly.
- E. Paint ductwork visible behind air outlets and inlets matte black.
- F. Provide all specialties and frames for air devices required for installation in ceiling type indicated in architectural documents. Provide all cutting and patching of T-bars, gypsum board and other ceiling systems as required for installation of air devices.

END OF SECTION